



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,372	02/08/2002	Kenneth C. Kern	RDH0005	1784

27810 7590 08/18/2003

EXXONMOBIL RESEARCH AND ENGINEERING COMPANY
P.O. BOX 900
1545 ROUTE 22 EAST
ANNANDALE, NJ 08801-0900

EXAMINER

LE, JOHN H

ART UNIT	PAPER NUMBER
----------	--------------

2863

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,372

Applicant(s)

KERN ET AL.

Examiner

John H Le

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 13-15 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 5, 9-12, 16-19 and 23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. Correction is required. See 37CFR 1.72.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1, 15, 19, 20, 21, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said oil refinery" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "said workup calculation modules" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 19, 20, "hydrotreating" and "hydrotreating unit" are not described in the drawings or the specification.

Claims 21, "emissions" is not described in the drawings or the specification.

Claims 22, "a lubes unit", "raffinate efficiency", "wax" are not described in the drawings or the specification.

Claim Objections

4. Claim 1 and 13 are objected to because of the following informalities:

Claim 1, line 3, "Collecting" should change to --collecting--,
line 5, "Performing" should change to --performing--,
line 6, after "measurements;", insert --and--
line 7, "Storing" should change to --storing--.

Claim 6, line 1, after "claim", insert --1--.

Claim 13, line 1, "of claim 1 thru 12" should change to --according to any one of claims 1-12--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4, 6-8, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Bjornson (USP 6,505,145).

Regarding claim 1, Bjornson teaches a method to monitor and analyze the performance (e.g. Col.3, lines 55-58, Col.4, lines 1-3, Col.10, lines 27-29, lines 63-65) of a petroleum processing unit (e.g. Col.1, lines 14-20) comprising steps of collecting historical data (e.g. Col.19, lines 62-65) relating to an oil refinery unit (e.g. Col.1, lines 16-20) from a process history database 106 (Fig.1)(e.g. Col.7, lines 35-45); performing a workup (e.g. Col.10, lines 63-65) to determine the output measurements (e.g. Col.2,

Art Unit: 2863

lines 14-17); storing the results of said workup in said process history database 106 (e.g. Col.8, lines 44-56).

Regarding claim 2, Bjornson teaches step of validating said historical data (e.g. Col.25, lines 51-56).

Regarding claim 3, Bjornson teaches step of correcting said data (e.g. Col.4, lines 12-14)

Regarding claim 4, Bjornson teaches the historical data includes stored data or calculated data from said process history database (e.g. Col. 18, lines 6-22).

Regarding claim 6, Bjornson teaches step of putting the results of said workup into a process model for said petroleum processing unit to compute the performance of the unit (e.g., Col.18, lines 6-22).

Regarding claim 7, Bjornson teaches step of performing is carried out by using calculation programs (e.g., Col.18, lines 6-22).

Regarding claim 8, Bjornson teaches compares workup results to a process model results (e.g. Col.5, lines 37-44, Col.8, lines 48-51, Col.12, lines 10-13, lines 53-56) to compare actual (Col.17, lines 49-51), predicted (Col.15, lines 64-67), and optimal operation (Col.3, lines 36-40).

Regarding claim 13, Bjornson teaches the results of said work up stored in said process history database may be accessed by other methods used in said petroleum processing unit (e.g. Col.5, lines 27-35, Col.7, lines 58-62, Col.13, lines 5-8, Col.20, lines 60-65).

Claim Rejections - 35 USC § 103

Art Unit: 2863

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bjornson (USP 6,505,145) in view of Decker (USP 5,107,441).

Regarding claim 18, Bjornson fails to teach performing step is carried out by including equations in the data workup that relate to the petroleum-processing unit.

Decker teaches the process and power generation industry as the petroleum industry to analyze the single-phase flow performance of valves (Col.11, lines 28-30).

Decker teaches performing step is carried out by including equations in the data workup that relate to the petroleum-processing unit (e.g. Col.11, lines 50-59, Col.16, lines 1-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform performing step is carried out by including equations in the data workup that relate to the petroleum processing unit as taught by Decker in a method of analyzing a plant performance of Bjornson for the purpose of providing a system, which determining the flow performance of a valve by first measuring certain flow parameters of the valve with the stem fixed in a plurality of different positions between full open and full closed and then calculating a value of flow coefficient for each (Decker, Abstract).

Allowabl Subject Matter

Art Unit: 2863

9. Claims 5, 9-12, 16-19, 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 5, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; and storing the results of said workup in said process history database, wherein said historical data comprising process data, including temperatures, pressures, flow rates and catalyst loadings, start and stop dates of the last workup. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 9, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; and storing the results of said workup in said process history database, wherein a Global attribute Mapping Reference Table which contains the definition and master control information to identify how every variable is

Art Unit: 2863

collected, transposed, moved through the modules and stored. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 11, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; and storing the results of said workup in said process history database, wherein said method includes the determination of a special balance window to define the appropriate starting and ending time window to be used for the workup and the process model for each execution of the method. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 16, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; storing the results of said workup in said process history database; and validating said historical data, wherein said data validation step includes filtering, damping, averaging, statistical, principle component analysis or process runs rules as a way to automatically set the bounds for validation. It is these

limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 17, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; storing the results of said workup in said process history database; and putting the results of said workup into a process model for said petroleum processing unit to compute the performance of the unit, wherein said model can be executed more than once at different conditions or different model modes in which to determine an optimum operating point. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 18, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; storing the results of said workup in said process history database; putting the results of said workup into a process model for said petroleum processing unit to compute the performance of the unit, and using the data in said process history database for assessment of the accuracy of the model and more exact tuning of the model. It is these limitations as they are claimed in the combination,

Art Unit: 2863

which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 19, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; and storing the results of said workup in said process history database, wherein said petroleum processing unit is a distillation unit and said workup is performed by using equations that relate to a distillation unit, including blending of feeds of different crude types, calculations of flash zone performance, hydraulic performance of tower sections, and hydro treating. It is these limitations as they are claimed in the combination, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 23, none of the prior art of record teaches or suggests the combination of a method to monitor and analyze the performance of a petroleum processing unit, wherein the method comprising steps of collecting historical data relating to an oil refinery unit from a process history database; performing a workup to determine the output measurements; and storing the results of said workup in said process history database, wherein said petroleum processing unit is a reforming unit and said workup is performed by using equations that relate to a reforming unit, including catalyst performance, recycle gas quantity and quality, regeneration effectiveness, and others. It is these limitations as they are claimed in the combination,

Art Unit: 2863

which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Other Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Berkowitz et al. (USP 5,488,561) disclose a multivariable control method and apparatus.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Le whose telephone number is (703) 605-4361. The examiner can normally be reached on Monday to Friday from 9:00 AM to 5:30 PM.

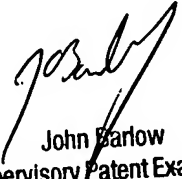
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. John Barlow, can be reached at (703) 308-3126. The facsimile number for Technology Center 2800 is (703) 308-5841.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of the Technology Center whose telephone number is (703) 308-0956.

John Le

Patent Examiner-Group 2863

August 6, 2003


John Barlow
Supervisory Patent Examiner
Technology Center 2800